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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/672,050	09/29/2000	Scott L. Broutin	Broutin 31-35-50	2996

24998 7590 05/29/2003

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EXAMINER

MONBLEAU, DAVIENNE N

ART UNIT PAPER NUMBER

2828

DATE MAILED: 05/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/672,050

Applicant(s)

BROUTIN ET AL.

Examiner

Davienne Monbleau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 May 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Drawings

The corrected or substitute drawings were received on 5/12/03. These drawings are accepted.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 19 is rejected under 35 U.S.C. 102(e) as being anticipated by Burbidge et al. (U.S. Patent No. 6,101,200). Burbidge et al. teach in Figure 2 a method of stabilizing a laser device comprising adjusting a tuning current applied to said laser (1) in response to output power (2) and simultaneously adjusting a wavelength characteristic of said laser (1) in response to an optically filtered (filtered by 10) fraction of said output power.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burbidge et al. (U.S. Patent No. 6,101,200) in view of Johnson (U.S. Patent No. 5,832,014). Regarding Claim 1, Burbidge et al. teach in Figure 2 a method of operating a laser comprising a first feedback loop (3) to adjust a characteristic of said laser device in response to a sensed wavelength and a second feedback loop (2) to adjust a current applied to said laser in response to a sensed amplitude, wherein both feedback loops operate simultaneously. Burbidge et al. further teach in column 1 lines 10-20 that semiconductor lasers may be used, but do not teach a DBR laser. Johnson teaches in column 1 lines 5-20 that said laser might be a DBR. It would have been obvious to one of ordinary skill in the art to apply the tuning methods in Burbidge et al. to a DBR, as taught by Johnson, because DBRs are semiconductor lasers and may be used in communication devices.

Regarding Claim 2, Burbidge et al. teach in Figure 2 adjusting the temperature (3) of said laser in response to said sensed wavelength.

Regarding Claim 3, Johnson teaches in Figure 1 a stabilized laser device comprising a DBR laser (12) with a gain section (14) and a tuning section (16). It would have been obvious to one of ordinary skill in the art at the time of the invention to tune the gain section of a laser, as taught by Johnson, to further stabilize the laser source.

Regarding Claim 4, Burbidge et al. teach in Figure 2 that lasers may be tuned in response to the output amplitude/power.

Regarding Claim 5, Burbidge et al. teach that said feedback loops (2 and 3) operate simultaneously. Therefore, it is logical that a third feedback loop may also operate simultaneously.

Regarding Claim 9, Burbidge et al. teach in Figure 2 calculating required adjustments based on a filtered power output (filtered by 10). Using an additional reference signal is

Regarding Claim 10, Johnson teaches in Figure 1 using a backface loop to compensate for aging, wherein said loop includes a backface monitor (20). (Also see abstract).

Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burbidge et al. (U.S. Patent No. 6,101,200) in view of Johnson (U.S. Patent No. 5,832,014), as applied to Claim 2 above, and further in view of Kuo et al. (U.S. Patent No. 6,222,861). Regarding Claim 6, Burbidge et al. in view of Johnson teaches that there may be a third feedback loop, but does not teach that said third feedback loop operates an amplifier. Kuo et al. teach in Figure 1 a laser wavelength-controlling device comprising an amplifier (118). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a feedback loop to operate an amplifier associated with said laser, as taught by Kuo et al., to control the output power/amplitude of the device.

Regarding Claim 7, it is obvious that tuning the amplifier would be in response to an output power, since producing a specific output power is its function.

Regarding Claim 8, see discussion on Claim 5.

Claims 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bielas (U.S. Patent No. 6,359,918) in view of Deacon (U.S. Patent No. 6,341,189). Regarding Claim 11, Bielas teaches in the abstract and in Figure 2 a method of tuning a light source (14) comprising

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having a look-up table/data memory (36) that indicates the amount of current to be provided to a light source to maintain a specific wavelength and applying that current to said light source.

Bielas does not teach that said data is representative of mode-hopping values. Deacon teaches in column 2 line 65 to column 3 line 7 the importance of tuning the modes to avoid mode-hopping behavior. Therefore, since it is known that current effects mode-hopping behavior, it would have been obvious to one of ordinary skill in the art at the time of the invention to use data values corresponding to mode-hopping values in Bielas, to more accurately tune said laser device and optimize output.

Regarding Claim 15, Bielas teaches in the abstract and in Figure 2 a method of changing the wavelength channel of a laser device comprising operating said laser device at a first wavelength (the initial starting wavelength), and applying a tuning current (from 37) as a function of a second wavelength stored in a look-up table/data memory (36). The tuning current is a function of a second wavelength because the memory indicates the amount of current needed to maintain a specific wavelength. Bielas does not teach that said data is representative of mode-hopping values. Deacon teaches in column 2 line 65 to column 3 line 7 the importance of tuning the modes to avoid mode-hopping behavior. Therefore, since it is known that current effects mode-hopping behavior, it would have been obvious to one of ordinary skill in the art at the time of the invention to use data values corresponding to mode-hopping values in Bielas, to more accurately tune said laser device and optimize output.

Regarding Claims 12 and 17, Bielas teaches in Figure 3 adjusting the temperature of the light source in a separate feedback loop (120 – 52) and using a heater/cooler (44). It is known in the art that a TEC may be used.

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Regarding Claims 13 and 16, determining the form of the data stored involves routine skill in the art.

Regarding Claim 14, having an additional tuning signal based on the look-up table is repetitious and involves routine skill in the art.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bielas (U.S. Patent No. 6,359,918) in view of Deacon (U.S. Patent No. 6,341,189), as applied to claim 15 above, and further in view of Johnson (U.S. Patent No. 5,832,014). Bielas does not teach monitoring the amplitude at the backface of said laser. Johnson teaches in Figure 1 using a backface loop to monitor the power. It would have been obvious to one of ordinary skill in the art at the time of the invention monitor the backface amplitude of said laser in Bielas, as taught by Johnson, to compensate for aging (see Johnson abstract).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burbidge et al. (U.S. Patent No. 6,101,200) in view of Mesh et al. (U.S. Patent No. 6,233,262). Burbidge et al. do not teach that said adjusting steps are performed by a microprocessor. Mesh et al. teach in Figure 1 using a microprocessor (30) to control tuning adjustments of a laser (12). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a microprocessor in Burbidge et al., as taught by Mesh et al., to accurately control and calculate the required adjustments.

Response to Arguments

Applicant's arguments filed 5/12/03, regarding Claims 1-10 and 15-20, have been fully considered and are persuasive. Therefore, the previous rejection has been withdrawn.

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Applicant's arguments filed 5/12/03, regarding Claims 11-14, have been fully considered but they are not persuasive. Bielas teaches in Figure 2 tuning a light source by using a look-up table (data memory) to choose appropriate current values to be applied to said light source. In Figure 2, a signal representative of the laser temperature is sent to a look-up table to determine the appropriate voltage that is needed to control the current of the laser diode. It correlates the diode temperature and the laser current. This is the tuning loop that Bielas teaches. Additionally, it is known in the art that current affects mode-hopping behavior in a laser and that avoiding such behaviors results in optimum laser performance (Deacon column 3 lines 1-7). Thus, since Bielas teaches a current look-up table and Deacon teaches avoiding mode-hopping behavior, it is logical that the current values in Bielas may correspond to particular mode-hopping values to tune the laser and prevent mode-hopping behavior.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5,042,042; US 6,393,041; US 6,351,476; US 6,120,190; and US 6,330,253.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davienne Monbleau whose telephone number is 703-306-5803. The examiner can normally be reached on Mon-Fri 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Danielle Merbleau

DNM
May 23, 2003

Paul J.
SPE 2828